

Mildred G. Smith

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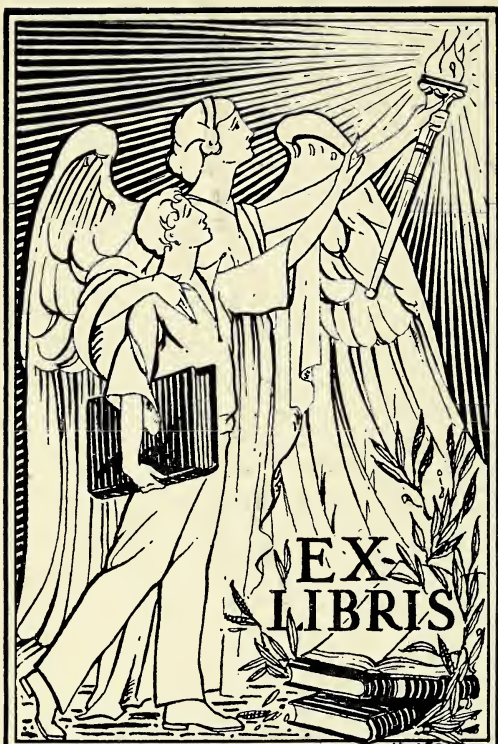
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The Industrial Nurse's Responsibility in Eye Health

By MILDRED G. SMITH

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PREVENTION of blindness and conservation of vision must be ranked high among the important measures in any industrial program planned for the welfare of the employee. Compensation for injury is not enough—economic and humanitarian considerations demand a plan for prevention.

The inestimable value of eyesight makes the eye a factor that cannot be neglected, or just casually considered. The workers in the office, the store, the factory, must be protected from eye injury and over-fatigue, and educated to appreciate the value of good vision and to observe the rules for conserving it. In all this, the industrial nurse has her own important part to play.

By "prevention" we usually mean the prevention of some definite catastrophe, as an acute illness or accident. Even this is not enough—conservation should accompany prevention. To maintain that which is good is perhaps the wisest, the most necessary program of all. Certainly it is one of true economy.

The industrial nurse—like every other public health nurse—finds that she is held entirely responsible for comparatively few health measures; she shares her responsibility with the physician. Her opportunities, however, for promoting, strengthening, and adding to the health program, are almost without limit. To be successful in her service the industrial nurse needs not only knowledge and deftness in first aid, but a complete understanding of what positive health really

means, its maintenance as well as its improvement, and an ability to seek the signs of health, as well as to observe evidences of illness.

In considering any special phase of health, we must be thoroughly convinced in our own minds of the importance of the inter-relationship of bodily functions. Not one organ or function can be considered as a thing apart from any other organ or function. Too often this fundamental truth has been forgotten when the eye and vision are considered. Now that the eye grounds are studied in making a diagnosis of systemic conditions, it is becoming easier to think in terms of the relationship of the eye to the rest of the body. If we also recall that during the building of the baby's body before birth, from that part which we later know as the brain, bud and push forward two parts—the eyes—we can readily appreciate the influence the eyes must have upon physical and mental conditions all through life. Eyes are a forward part of the brain, as it were, and therefore part of the nervous system itself.

To mention "eyes and industry" immediately brings to mind "accidents." This mental reaction is to be expected, for in industry there are still far too many eye hazards. It is estimated that in the United States, 15 per cent of the blindness that could have been prevented is due to industrial accidents.*

There are two points of attack on this problem: first, education of the employer and employee in the necessity for provision and use of safety de-

* "Eye Hazards in Industrial Occupations" by Louis Resnick and Lewis H. Carris, 1924. Illustrated. Published by National Society for the Prevention of Blindness, 370 Seventh Avenue, New York, N. Y. (Paper binding \$1.50; fabrikoid \$2.50; special prices on quantity lots.)

Deals with the types of eye injuries sustained in industries and the precautionary measures which should be employed; the relation of refractive errors and diseases of the eye to accident; industrial lighting and first aid to eye injuries.

vices on machinery, proper lighting and goggles for the worker exposed to glare or flying particles; second, the absolute need for immediate and expert care of every case of eye injury, no matter how trivial that injury may seem. To accomplish either of these ends is a big task, and both are imperative if the present sacrifice of eyesight is to be overcome. Doctors find much trouble resulting from foreign bodies in the eye, the real disturbance often being due to an awkward attempt at removal by one who is not trained in the proper and safe procedure. Every effort should be made not only to discourage, but to forbid a workman's attempting to remove any sort of foreign body from another workman's eye. This first aid should be given in the agency's health department, by the physician or nurse, and there only. Goggles would prevent these accidents in the first place, but goggles are not supplied as frequently as they should be or are not consistently used when they are supplied. Here the industrial nurse has as great an opportunity as any one to use her influence in getting the worker to wear goggles. It is she who is thrown in contact with the worker at the time of an accident when goggles have not been worn, and she is very often in a position to teach the lesson exemplified by the workers' neglect to take advantage of the safety measures available.

As big as the problems of accident prevention and care are, they still are not all that the industrial nurse must be concerned with. She is interested in eyes as a factor in the whole health of the worker, and is mindful of all the conditions which affect them. She is interested in the health of the eye as it relates to vision, and as it relates to the health of the individual.

ACUITY TEST ESSENTIAL

As an employee is placed on the payroll, his physical check-up should include an acuity test as well as an eye inspection. The ability to see accurately and without undue fatigue is essential in most jobs. A vision test is important. It is worthy of

sufficient time and thought to make it accurate and therefore valuable. A record of the individual's ability to see may at some time be of extreme importance when a medical decision is to be made, a decision in which the employer as well as the employed may be affected.

To make an accurate acuity test, certain recognized standards of method and equipment should be observed. The industrial record should be comparable to the school record as well as to records of other industrial plants. Body conditions and mental attitudes are built up slowly; the past as well as the present must be known if the state of health is to be fully understood and protected.

The chart in general use for acuity tests is of the letter or symbol E type, and according to the Snellen scale. While devised for illiterates, the E chart can be and is used with satisfaction—some feel with greater satisfaction—for literate adults. Whatever type the chart may be, it must be accurately printed, in dense black and sharply defined letters. The chart must be adequately lighted and without glare. Two bulbs in a trough-like reflector placed at one side and at the front of the chart, give very good light. An ordinary goose-neck desk lamp, with the aluminum tinted reflector and a 60 watt daylight bulb, placed within two feet and toward one side and front of the lower and most used part of the chart, is perfectly satisfactory.

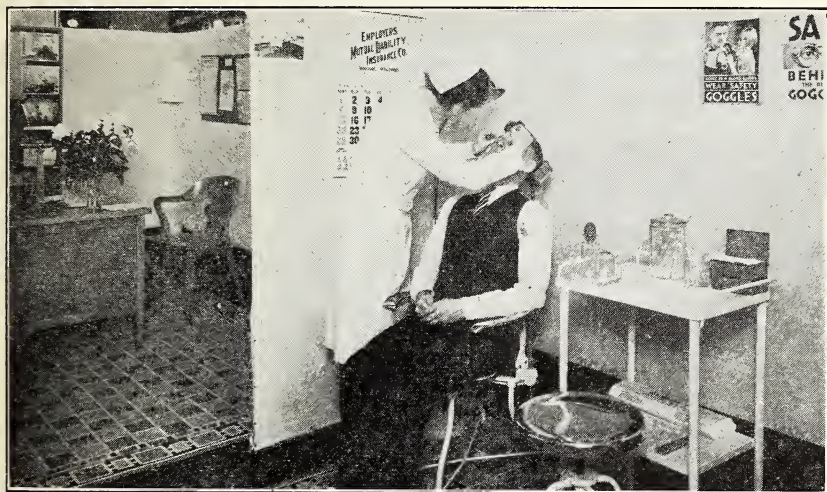
Without sufficient light, results may easily be inaccurate, and usually are. Daylight, though the best kind of light, is variable. It is most desirable in testing acuity to depend only upon artificial light, since it can be constant. In the periodic examinations, vision records should be comparable from time to time, but cannot be if the amount of light ranges from below to above the minimum considered sufficient for a reliable test. By "sufficient" is meant an accurate measurement in terms of foot-candles; ten is the number usually considered the minimum for satisfactory screening

out work. Light is measured with a meter, a foot-candle meter, an instrument that is easily handled and of very practical value.*

A twenty foot distance between the chart and the individual being tested is desirable. Whatever the indicated distance, its measurement should be accurate, not guessed. A card rather than the cupped hand should be placed before the eye in testing, and in such position that even though it is not seeing, the eye remains open.

worse than useless. To give a true record of acuity, it is essential that the subject tested be both interested and at ease. The vision test is a part of the physical checkup for which the nurse often develops particular aptitude.

In using a chart, not only the reading of it, but the attitude in reading is to be noted. Signs of unusual effort to read or tilting of the head are not normal and therefore should be put on record. Complaints of headache,



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Skilled Attention

Of equal importance with the equipment is the attitude of the person testing the eyes; too often our minds are entirely upon the chart and almost oblivious of the individual. The process of seeing depends not alone upon the eye, but upon the mind as well. To interpret clearly the picture the eye carries, the mind must be ready to receive that picture. Apprehension, embarrassment, misunderstanding of directions, indifference, as well as more intense emotional upsets, such as sorrow or anger, tend to make for inaccuracy. An inaccurate vision test is

blurring, burning or twitching of lids, an unusual flow of tears, or an unhealthy appearance of the eye itself, may be indicative of eye fatigue or strain, and are worthy of notation and consideration. The eye in perfect health accomplishes its work not only well but easily.

Eye accidents and vision testing are matters of individual personal attention. Beyond these lies much that concerns groups of individuals. Just as the body fatigues, so may the eye. In seeing, actual work is being performed. If that work is accomplished

* The foot-candle meter can be purchased from the National Lamp Works, Nela Park, Cleveland, Ohio, and the Edison Lamp Works, Harrison, N. J., both of the General Electric Co.; also from the Westinghouse Lamp Co., 150 Broadway, New York City. A book of directions is included. The price of the meter is \$22.50 and the leather carrying case is \$2.50, which makes the complete article \$25.00.

under adverse conditions, it is but natural that the eye suffers as well as the nervous system of which it is a part. Fatigue of the eye exerts a peculiar and wide influence. Probably the first reaction is in behavior. Irritation and indifference manifest themselves and affect other workers as well as the work in hand. Behavior habits, continuing for some time, even though due to a physical handicap which may be removed, do not necessarily change with the removal of the cause. To allow a worker to build up bad mental habits is serious for himself and for the group with which he works. It must also be remembered that physical impairment of the eye itself may result when eye work is done under conditions of continual mental strain conducive to great fatigue.

Environment, then, as it influences the ease with which eye work may be done, becomes a matter of concern to the industrial nurse even though she is not and should not be directly responsible for that environment. It is quite possible, through her interest in working conditions, that the attention of those who are responsible for them may be secured and an improvement result, influencing the health of many.

LIGHTING THE SHOP

To work easily, the eye must have sufficient light. While the amount of light required for various tasks may be different, in general, it is safe to say that ten foot-candles should be the minimum. The source of this light should be so placed in regard to the work being done that the best light falls upon the working surface. Usually this would mean that the light source should be high so that light

falls from above downward, avoiding shadow. Because it is fatiguing to the eye to adjust to different amounts of light, the best lighting system is one that floods the whole workroom evenly.*

Glare is more immediately distressing than is the lack of sufficient light. To face any source of light means glare. A surface which reflects light at an angle gives us what we might term a secondary source of light; therefore polished surfaces are undesirable. To reduce glare, the position of the worker should be such that he does not face any source of light, and all finishes, such as on walls, ceilings, trim and furniture, should be dull.

The entire subject of light can be and is very interesting and easily comprehended by workers. Since lessons in health learned during working hours are carried into the home, it is important that light in the plant be adequate and of good quality. Fortunate is the individual who studies in a well lighted school room, works in a properly lighted workroom, returns to a comfortably lighted home.

To sum up, the industrial nurse may make a valuable contribution to the eye safety and eye health of the worker if she tries to teach the value and necessity of safety devices on machinery and as worn by the workers; to demand that every eye injury, no matter how trivial, be cared for by trained persons in the medical department and that this care continue until all signs of trouble have disappeared; to secure adequate light without glare in all workrooms; and to show that eye health has a vital and practical relationship to the maintenance and upbuilding of general health.

* It is interesting to read, in relation to this point, that plans are under way for a modern factory in Massachusetts which will be entirely without windows or skylights—lighting and ventilation being secured artificially.



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